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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,952	09/23/2003	Yoshihiro Isogai	5000-5124	4760
27123	7590	09/11/2006		
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			EXAMINER LAURENCE JR, FRANK M	
			ART UNIT	PAPER NUMBER

1724

DATE MAILED: 09/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/669,952

Applicant(s)

ISOGAI ET AL.

Examiner

Frank M. Lawrence

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 10-12 is/are rejected.
- 7) ☒ Claim(s) 8 and 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Turillon et al. (4,134,490).
4. Turillon et al. '490 teach a hydrogen storage container (20) filled with granular hydrogen absorbing alloy powder (26) such as  $Mg_2Ni$  or  $LaNi_5$ , and a nickel powder (28) having a spatially extended structure (see figures, col. 2, line 52 to col. 3, line 37). The nickel powder can be used in an amount of about 5% to 40% of the total powder volume.
5. Claims 1, 2 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Konishi et al. (4,859,427).
6. Konishi et al. '427 teach an active metal bed for absorbing hydrogen, comprising a housing (16) filled with a mixture of hydrogen storage alloy powder and a heat absorber powder that can be aluminum with a flake shape (col. 5, line 28 to col. 6, line 3). The mixture is held

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inside perforated copper tubes that anticipate the claimed porous metal molding (col. 4, lines 32-38) and the alloy powder can include a rare earth metal alloy.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5-7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konishi et al. '427 in view of Turillon et al. '490.

9. Konishi et al. '427 disclose all of the limitations of the claims except that the alloy has a preferred particle size and composition, and that the flaky powder has a preferred particle size. Turillon et al. '490 disclose a hydrogen storage device as described in paragraph 4 above. It would have been obvious to one having ordinary skill in the art at the time of the invention to use a known storage alloy powder based on the application, availability, and cost considerations. Absent a proper showing of criticality or unexpected results, the powder dimensions are considered to be parameters that would have been routinely optimized by one having ordinary skill in the art at the time of the invention in order to increase contact area and hydrogen absorption capacity.

10. Claims 1-5, 7, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heung (6,432,379) in view of Konishi et al. '427.

11. Heung '379 discloses a hydrogen storage tank comprising a housing (20), an aluminum foam matrix (26) disposed in the housing, a rare earth alloy hydrogen storage powder disposed in

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the matrix, a heat exchange pipe (22) in contact with the matrix, and aluminum divider fins (28) soldered to the pipe and the matrix (see figures, col. 5, lines 32-48, col. 8; lines 10-61, col. 9, lines 23-29). The instant claims differ from the disclosure of Heung '379 in that the storage powder has a preferred particle size and is a composite including a flaky Al powder having preferred dimensions.

12. Konishi et al. '427 disclose a hydrogen absorber as described in paragraph 6 above. It would have been obvious to one having ordinary skill in the art at the time of the invention to include a flaky Al powder in order to provide a heat absorber that will improve absorption characteristics by removing the heat of absorption generated by the alloy powder. Absent a proper showing of criticality or unexpected results, the powder dimensions are considered to be parameters that would have been routinely optimized by one having ordinary skill in the art at the time of the invention in order to increase contact area and hydrogen absorption capacity

#### ***Allowable Subject Matter***

13. Claims 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references listed on the attached PTO-892 form disclose hydrogen storage alloy devices.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 571-272-1161.

The examiner can normally be reached on Mon-Thurs 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Frank M. Lawrence  
Primary Examiner  
Art Unit 1724

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*Frank Lawrence*  
8-28-06